HYDRODINAMIC CIRCULATION PATTERN AND QUATERNARY EVOLUTION OF SOUTHERN STATE OF SÃO PAULO (CANANÉIA-IGUAPE) REGRESSIVE COASTAL PLAINS, BRAZIL

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The regressive sandy deposits found in southern state of São Paulo (Cananéia-Iguape) coastal plain (Upper Pleistocene and Holocene beach ridges) reciprocally maintain, besides geomorphological similarities, textural and mineralogical resemblances (Suguio & Petri, 1973; Petri & Suguio 1973). These properties are attributable to the persistence of source area, as well as to the likeness of transportation, sorting and depositional mechanisms which were active during Upper Quaternary until today (Suguio & Martin 1978).

The analysis of present hydrodinamic circulation pattern of this area indicated the occurrence of two wave sistems, whose propagation trends are induced by general atmospheric circulation over South American continent, producing longshore currents with different orientation (Tessler, 1989). The first wave system, coming from S - SE, is due to penetration of polar air masses, mostly during winter and autumn, producing longshore currents from SE to NE. The second wave system, coming from E - NE, is related to trade winds yielding longshore currents from NE to SW.

The study of Quaternary evolutionary history of this coastal plain showed that the portion situated backward of the Comprida island, in a sheltered area, is mostly Pleistocene in age and was deposited as regressive beach ridges

through transversal accretion due to sea-level drop just after 120 ky B.P. This coastal plain was dissected by a drainage net during the last glacial sea-level drop, whose climax occured about 18 ky B.P. Subsequently, main outlets of this drainage net have been partially closed by barrier islands, transforming them into an extensive lagoonal system, which has been filled up by organic clayey-sandy deposits. New sandy beach ridges were firstly abutted against the barrier island, and between 5 ky and 3 ky B.P., were controlled mainly by longitudinal accretion due to longshore currents, followed by a phase just after 3 ky B.P. when the transversal accretion due to sea-level drop was once more dominant (Suguio & Martin op.cit).

Finally, it seems that present hydrodynamic circulation pattern, identified in this coastal zone, is nearly congruent with nearshore circulation which prevailed this area just after 120 ky B.P. until today (Fig. 1). However, the role played by longshore currents became much more effective only along the outer margins of this coastal plain from 3 ky B.P. until today (Martin & Suguio, 1978).

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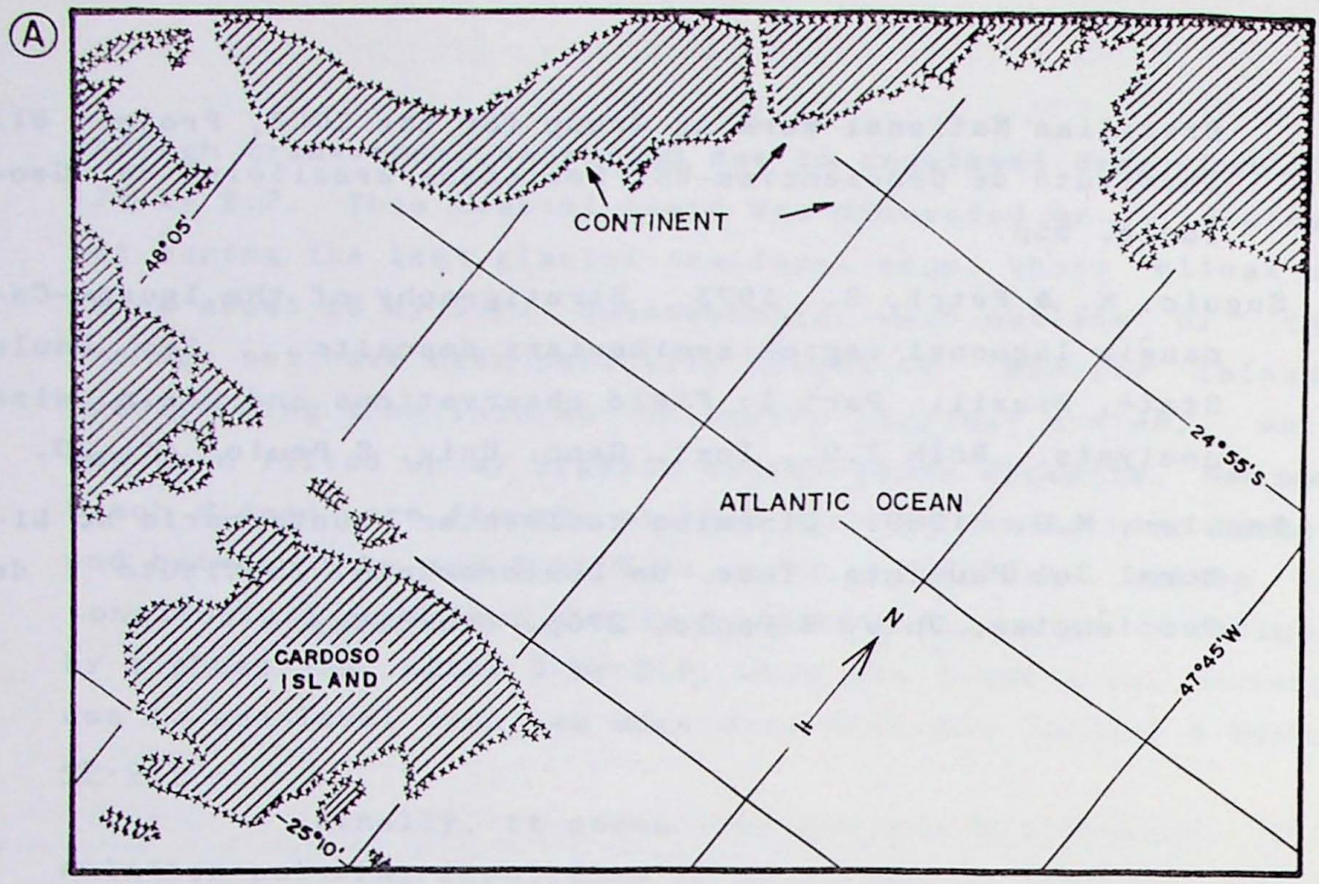
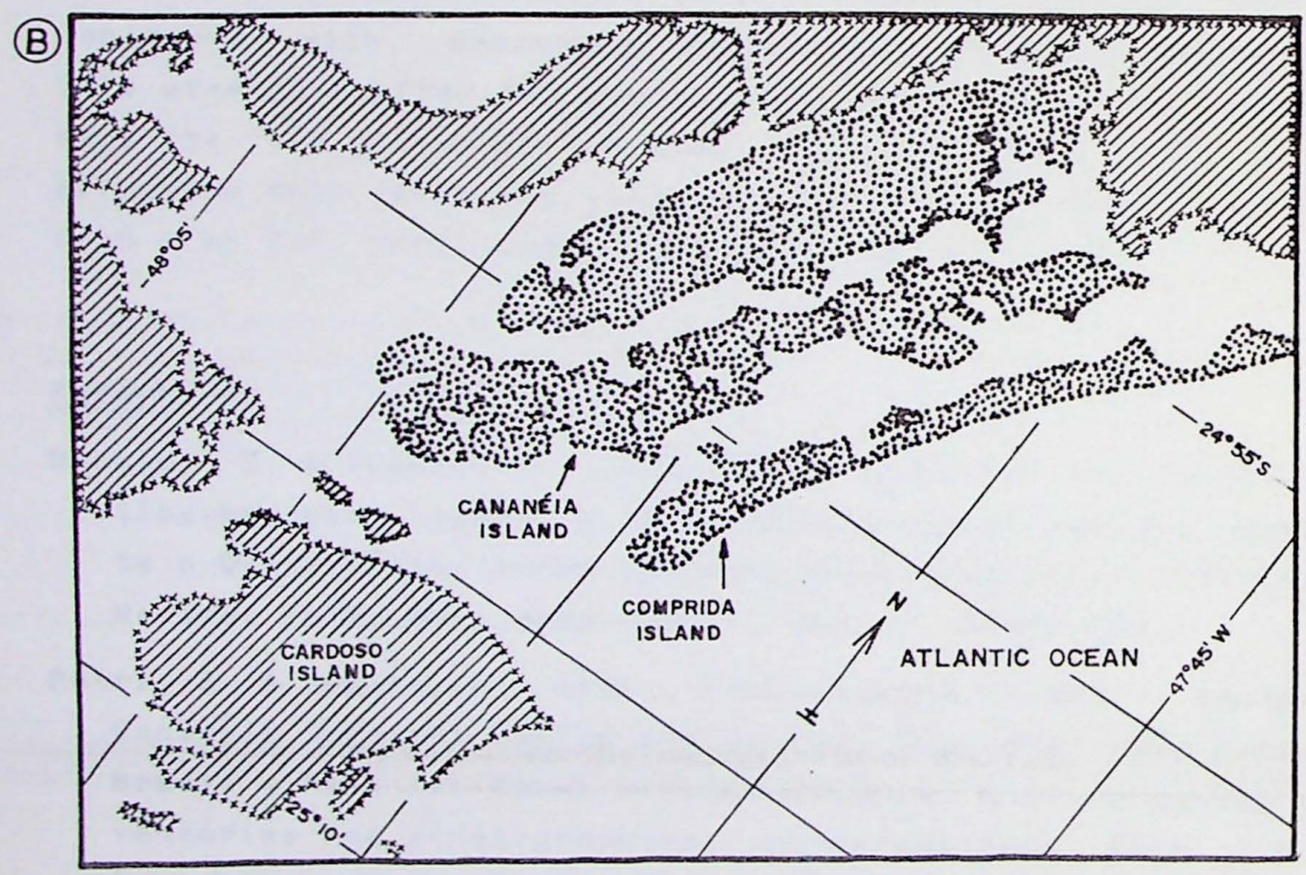
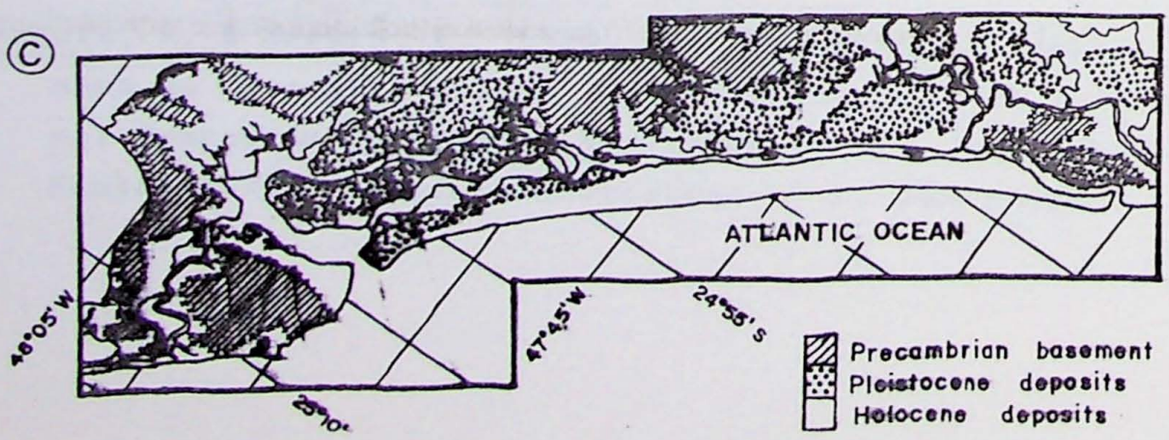

A
CONTINENT
48°05'
24°55'S
ATLANTIC OCEAN
N
47°45'W
CARDOSO ISLAND
25°10'


B
48°05'
CANANÉIA ISLAND
24°55'S
COMPRIDA ISLAND
N
CARDOSO ISLAND
ATLANTIC OCEAN
47°45'W
25°10'


C
ATLANTIC OCEAN
48°05'W
47°45'W
24°55'S
25°10'
Precambrian basement
Pleistocene deposits
Holocene deposits